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ABSTRACT

Business statistics is a required course for business and management majors and a prerequisite for advanced courses at the University of Maryland College Park. According to university records, typically 23% of the students enrolled for the course withdraw. The Counseling Center's Learning Assistance Service has a series of 16 45-minute audio-tutorial tapes with workbooks which presents important topics in basic statistics covered in the business statistics course. The taped series was offered to selected sections of the business statistics course as an adjunct to course presentations and discussions for helping students to keep up with the course material, and hence as a way of reducing the withdrawal rate from the course. Two sections of the course did not use the audiotape series and were identified as the non-treatment control group. Data concerning course grade, registration status, and academic action were obtained from university records, and were analyzed for four semesters subsequent to the semester of intervention. Students who listened to at least one of the tapes were significantly less likely to withdraw from the course and earned significantly higher grades for the course than did students who chose not to listen to the tapes and those in the control group. For four semesters after the semester of intervention, students who used the tapes held a steady re-enrollment rate of 94% as opposed to a declining enrollment rate for nonusers and for the control group. Tape users held an equally steady rate of re-enrollment in good standing (94%), while rates of re-enrollment in good standing declined for nonusers and the control group. These differences were not statistically significant; nevertheless this intervention is an effective adjunct to the course for highly motivated students and does have institutional significance. (GL)

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Using a Taped Mini-course in Statistics as an Adjunct to Business Statistics

Research Report #13-89

The Counseling Center Retention Study Group*

*Vivian Boyd, Steven Carstens, Patricia Hunt, Stanley Hunt, Thomas Magoon, Jean McDevitt

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Using a Taped Mini-course in Statistics as an Adjunct to Business Statistics

The Counseling Center Retention Study Group*

Summary

Eighteen (11%) of the 196 students enrolled in eight sections of BMGT 230: Business Statistics responded to encouragement from their TA to go to the Learning Assistance Service of the Counseling Center to listen to at least one audio-tutorial tape presenting topics in basic statistics also covered in their classes. Students who listened to at least one of the tapes were more successful in the course than were both students who were encouraged and did not listen to the tapes and students in sections of BMGT 230 in which the tapes were not mentioned. Tape users were also nonsignificantly more likely to persist and to maintain satisfactory GPAs over the next four semesters than were the other students in BMGT 230. Since the intervention is relatively cost effective in terms of personnel and equipment, announcing to students in Business Statistics that the tapes are available in the Learning Assistance Service ought to become standardized practice.

* Vivian Boyd, Steven Carstens, Patricia Hunt, Stanley Hunt, Thomas Magoon, Jean McDevitt

Using a Taped Mini-course in Statistics as an Adjunct to Business Statistics

Counseling Center Retention Study Group*

Business Statistics (BMTG 230) is a required course for Business and Management majors and a prerequisite for advanced BMGT courses. According to University records, typically 23% of the students enrolled in BMGT 230 withdraw from the course. This is more than three times as high as the average withdrawal rate in lower division courses. This suggests that the progress of two groups of students is delayed, adding time from matriculation to graduation: (a) those who withdraw from the course; and (b) those who may have been closed out from registering for the (required) course initially because of limited class sizes.

The Counseling Center's Learning Assistance Service has a series of sixteen 45-minute audio-tutorial tapes with workbooks (EDUCULTURE INC.), which presents important topics in basic statistics - - topics covered in BMGT 230. The taped series was offered to selected sections of BMGT 230, with the agreement and support of the professor and teaching assistants,[1] as an adjunct to course presentations and discussions for helping students keep up with the course material, and hence as a way of reducing the withdrawal rate for that course.

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1. RSG acknowledges the support of Professor William Widhelm, and teaching assistants Mike Curran and Basil Clarke.

METHOD

During the third week of classes in Spring 1987, two teaching assistants handed out a brochure prepared by the Retention Study Group describing the audio-tutorial tapes and how they could be helpful to BMGT 230 students representing eight sections of BMGT 230 . Several times during the semester teaching assistants encouraged students to take advantage of the series. Two sections of BMGT 230 (n = 88) received no brochure and were identified as the non-treatment control group.

The Learning Assistance Service (LAS), which housed the tapes and the equipment for their use, kept a record of BMGT 230 students who came to the Service to listen to the tapes.

Outcome Variables

Those who listened to at least one tape, those who chose not to, and the control group, were compared on the following three outcome variables to determine the effect of listening to the tapes on subjects':

(1) Final course grade for BMGT 230;

(2) Academic persistence, defined as being enrolled for a given semester, or graduated;

(3) Academic persistence in good standing, defined as being enrolled for a given semester and with no academic action taken as a result of the previous semester.

All data concerning course grade, registration status and academic action were obtained from University records. Data were analysed for four semesters subsequent to the semester of intervention.

RESULTS

Eighteen of the 196 students in the targeted sections (11%) went to the Learning Assistance Service and listened to at least one of the tapes.

Table 1 shows the final course grade for BMGT 230. Students who used the tapes had better course grades than both those who had the opportunity to listen to the tapes but did not use it, or the uninformed students. Differences in grades/retention were significant at the .001 level, using the chi square statistic. Students encouraged by their TA to make use of the tapes, especially those who did so, were more successful in the course than students who were not.

Table 1.

Final Course Grade by Group

Final Grade	Group Tape Users		Tape Nonusers		Comparison	
	n	%	n	%	n	%
initial n	18		178		85	
A	0		13	7	4	5
B	8	44	36	20	24	28
C	9	50	89	50	31	36
D	0		18	10	12	14
F	0		6	3	2	2
I	1	6	0		0	
W	0		16	9	12	14

chi square = 36.0 with 14 D.F.; p=.001

Table 2 shows academic persistence rates for the semester of intervention and for four subsequent semesters, for the three groups. While there are no statistically significant differences among the groups, at the .05 level, users tended to persist at higher rates than the non-users or

the comparison group.

Table 2.

Academic Persistence Rates by Group

	Group					
	Tape Users		Tape Nonusers		Comparison	
Semester	n	%	n	%	n	%	p
initial n	18		178		85		
F '87	17	94	163	92	82	96	ns
S '88	17	94	154	87	77	91	ns
F '88	17	94	152	85	71	84	ns
S '89	17	94	152	85	70	82	ns

Table 3 shows rates of academic persistence in good standing for the three groups. Differences among groups were not statistically significant at the .05 level. It appears, however, that the tape users were slightly more likely to persist and to maintain satisfactory GPAs over the next four semesters than were the other students in BMGT 230.

Table 3.

Academic Persistence in Good Standing by Group

	Group					
	Tape Users		Tape Nonusers		Comparison	
Semester	n	%	n	%	n	%	p
F '87	17	94	161	90	79	93	ns
S '88	17	94	152	85	77	91	ns
F '88	17	94	143	80	68	80	ns
S '89	17	94	150	84	70	82	ns

DISCUSSION

Students enrolled in BMGT 230 who went to the Learning Assistance Service and listened to at least one of the stat tapes were significantly less likely to withdraw from the course and earned significantly higher grades for the course than did students who chose not to listen to the tapes and those in the comparison group. For four semesters after the semester of intervention, students who used the stat tapes held a steady reenrollment rate of 94%, as opposed to a declining reenrollment rate for nonusers and for the comparison group. Tape users held an equally steady rate of reenrollment in good standing (94%), while rates of reenrollment in good standing declined for tape nonusers and the comparison group. Nevertheless, these differences were not statistically significant.

It would seem that offering audio-tutorial tapes to students enrolled in Business Statistics, and having teaching assistants remind students at various times throughout the semester of the tapes and where they are housed, is an effective adjunct to the course for the highly motivated student. While its generalizability to academic performance in general is not statistically supported, it has institutional significance. Since the intervention is relatively cost effective in terms of personnel and equipment, announcing to students in Business Statistics that the tapes are available in the Learning Assistance Service ought to become standardized practice.

Reference

Educulture, Inc. (1978) Mini-courses in Statistics: An Audio-tutorial learning system. CA.